AMENDMENTS TO THE CLAIMS

1. (Canceled).

2. (New): A magnetic sensor comprising;

a magnetoresistance effect element that contains a free layer and a pinned layer whose magnetization direction is pinned, said magnetoresistance effect element having a resistance value that changes in accordance with a relative angle formed by the magnetization direction of the pinned layer and a magnetization direction of the free layer;

said magnetic sensor being formed in such a manner that a plurality of said magnetoresistance effect elements are provided in a single plane on a single chip having a generally square shape, said magnetoresistance effect elements are placed symmetrically with respect to center lines of said generally square chip, and the pinned layers of at least two of said plurality of magnetoresistance effect elements have the pinned magnetization directions that cross each other.

3. (New): The magnetic sensor according to claim 2, including four of said magnetoresistance effect elements constructing a X-axis or a Y-axis magnetic sensor by full bridge connection of the four elements, said pinned magnetization directions of the pinned layers of the four elements being parallel to each other.

4. (New): A magnetic sensor comprising eight magnetoresistance effect elements including a first through an eight element, each of said elements containing a free layer and a pinned layer whose magnetization direction is pinned and each having a resistance value that changes in accordance with a relative angle formed by a

magnetization direction of said pinned layer and a magnetization direction of said free layer;

said magnetic sensor being formed in such a manner that said magnetoresistance effect elements are provided in a single plane on a single chip having a generally square shape having sides along an X-axis and a Y-axis that are perpendicular to each other in a plan view;

(a) said first element being formed in a neighborhood of an end of the chip in a negative direction of the X-axis and a little below a generally central part of the chip in the Y-axis direction, and having a pinned magnetization direction of said first element's pinned layer in a direction of the X-axis;

(b) said second element being formed in a neighborhood of an end of the chip in a negative direction of the X-axis and a little above a generally central part of the chip in the Y-axis direction, and having a pinned magnetization direction of said second element's pinned layer in the direction of the X-axis;

(c) said third element being formed in a neighborhood of an end of the chip in the positive direction of the X-axis and a little above a generally central part of the chip in the Y-axis direction, and having a pinned magnetization direction of said third element's pinned layer in the direction of the X-axis;

(d) said fourth element being formed in a neighborhood of an end of the chip in the positive direction of

the X-axis and a little below a generally central part of the chip in the Y-axis direction, and having a pinned magnetization direction of said fourth element's pinned layer in the direction of the X-axis;

(e) said fifth element being formed in a neighborhood of an end of the chip in the positive direction of the Y-axis and a little to the left of a generally central part of the chip in the X-axis direction, and having a pinned magnetization direction of said fifth element's pinned layer in the direction of the Y-axis;

(f) said sixth element being formed in a neighborhood of an end of the chip in the positive direction of the Y-axis and a little to the right of a generally central part of the chip in the X-axis direction, and having a pinned magnetization direction of said sixth element's pinned layer in the direction of the Y-axis;

(g) said seventh element being formed in a neighborhood of an end of the chip in the negative direction of the Y-axis and a little to the right of a generally central part of the chip in the X –axis direction, and having a pinned magnetization direction of said seventh element's pinned layer in the direction of the Y-axis; and

(h) said eighth element being formed in a neighborhood of an end of the chip in the negative direction of the Y-axis and a little to the left of a generally central part of the chip in the X-axis direction, and having a pinned

magnetization direction of said eighth element's pinned layer in the direction of the Y-axis.

5. (New): The magnetic sensor according to claim 4 wherein:

(a) said first to fourth elements construct an X-axis magnetic sensor for detecting a magnetic field in the X-axis direction by full bridge connection of the first to fourth elements; and

(b) said fifth to eighth elements construct a Y-axis magnetic sensor for detecting a magnetic field in the Y-axis direction by full bridge connection of the fifth to eighth elements.

6. (New): The magnetic sensor according to claim 5, wherein:

(a) the pinned magnetization direction of the pinned layer of the first and the second elements are in the negative direction of the X-axis;

(b) the pinned magnetization direction of the pinned layer of the third and the fourth elements are in the positive direction of the X-axis;

(c) the pinned magnetization direction of the pinned layer of the fifth and the sixth elements are in the positive direction of the Y-axis; and

(d) the pinned magnetization direction of the pinned layer of the seventh and the eighth elements are in the negative direction of the Y-axis.

7. (New): A magnetic sensor comprising a plurality of magnetoresistance effect elements, each element containing a pinned layer and a free layer and having a resistance value that changes in accordance with a relative angle formed by a magnetization direction of the pinned layer and a magnetization direction of the free layer:

(a) said magnetic sensor being formed in such a manner that said magnetoresistance effect elements are provided on a single chip;

(b) an X-axis group of said magnetoresistance effect elements constructing a X-axis magnetic sensor for detecting a magnetic field in the X-axis direction; and

(c) a Y-axis group of said magnetoresistance effect elements constructing a Y-axis magnetic sensor for detecting a magnetic field in the Y-axis direction perpendicular to the X-axis.

8. (New): The magnetic sensor according to claim 7, wherein:

(a) said X-axis group of magnetoresistance effect elements construct the X-axis magnetic sensor by full bridge connection, and the pinned magnetization directions of these magnetoresistance effect elements are in the X-axis direction; and

(b) said Y-axis group of magnetoresistance effect elements construct the Y-axis magnetic sensor by full bridge connection, and the pinned magnetization directions of the magnetoresistance effect elements are in the Y-axis direction.